

## HEAD RELATIONAL TRANSFER FUNCTION VIRTUALIZER

### ABSTRACT

- 5 Sound and the spatial location of the sound relative to a microphone array are sensed and derived respectively and transmitted to a sound reproducing system that uses the sound as a monaural stream and shapes the monaural stream according to channels using time delays, attenuation, reverberation, and filters that represent head-related transfer functions (HRTFs) where each HRTF has coefficients that are functions of spatial location,
- 10 particularly one or both angles of incidence. This invention in some embodiments provides for acoustical images of a speaker moving relative to the microphone array and in other embodiments provides for adjustments in a listener's HRTF database derived from sounds from the listener.